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ABSTRACT

This study had four objectives: (1) an empirical validation of a conceptual framework about the cognitive functioning of beginning teachers, including the role of the concepts of subjective theory, professional self, self-image, self-esteem, job motivation, task perception, and future perspective; (2) trial and refinement of a semi-structured interview as a data collection device in the study of subjective theories and the study of the professional self of beginning teachers, and as an instrument in support settings; (3) the gathering of data on subjective theories and the professional self of beginning teachers; and (4) the development of an adequate support system for beginning teachers. The interviews included items in four domains, covering the most important part of the teacher s professional task: teaching methodology, relations between teachers and pupils, subject matter, relations of teachers with parents, school administrators, and supervisors. Seventy beginning teachers participated in the study; all were employed at least half time, in kindergarten through secondary school. The results highlight the need for organized support systems for beginning teachers and for mentoring. (Contains 12 references.) (JLS)

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Subjective theories and professional self of beginning teachers

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1. Objectives

In this study[1], four objectives are pursued:

1. an empirical validation of a conceptual framework about the cognitive functioning of (beginning) teachers, including the concepts 'subjective theory', 'professional self', 'self image', 'self esteem', 'job motivation', 'task perception' and 'future perspective',
2. the try-out and refinement of semi-structured interview as a data collection device in the study of subjective theories and the professional self of (beginning) teachers, and as an instrument in support settings,
3. the gathering of data on subjective theories and the professional self of beginning teachers, and
4. the development of an adequate support system.

2. Theoretical framework

A central assumption in recent research on teaching is that it encompasses more than the effective use of a repertoire of specific technical knowledge and skills. Teaching is a complex process, that is also influenced by teachers' perceptions and judgments, which are colored by teachers' cognitions: concerns, beliefs, opinions, meanings, etc. (see e.g. Clark & Peterson, 1986). These cognitions are organized in what we call the "personal interpretive framework", the lens through which teachers perceive, give meaning to and act on their work situation in the school (Kelchtermans, 1993, p.447).

From our research on experienced teachers' professional development, we learned that two main interwoven domains can be distinguished in the personal interpretive framework: a set of conceptions about oneself as a teacher, the professional self and a personal system of knowledge and beliefs concerning teaching and being a teacher, the subjective educational theory.

Building on earlier research (Kelchtermans, 1993; 1994), we distinguish within the professional self two dimensions and five components (see figure 1). The retrospective dimension refers to conceptions about the self as they appear if one looks back from the present to the past. This dimension is further differentiated in a descriptive, an evaluative, a conative and a normative component that corresponds respectively with the self-image, the self-esteem, the job motivation an the task perception. The prospective dimension becomes clear if one looks ahead to the future from the present. This corresponds to the future perspective (Kelchtermans, 1993, p. 448-450).

Intrinsically linked to the professional self is the teacher's subjective educational theory. This "professional know how" is very often implicit or only partially conscious for teachers. Therefore they are often referred to as "implicit theories". Through reflection however, these cognitions can be evoked and stated explicitly. Examples of elements in the subjective theory of primary school teachers are: "children in primary schools are not mature enough to work in small groups" or "when the weather is breaking, children are always restless'.

In this study we focus on beginning teachers, their subjective theories and their professional self. The underlying assumption is that understanding the subjective theories and the professional self of beginning teachers is essential to effectively influence their perceptions and judgments in order to improve their professional behavior.

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[1] The study which is reported here is funded by the Department of Education of the Ministery of the Flemish Community in Belgium (F.K.F.O.-M.I. n° 92.08). For a complete report, see: S. JANSSENS, G. KELCHTERMANS a.o., 1995.

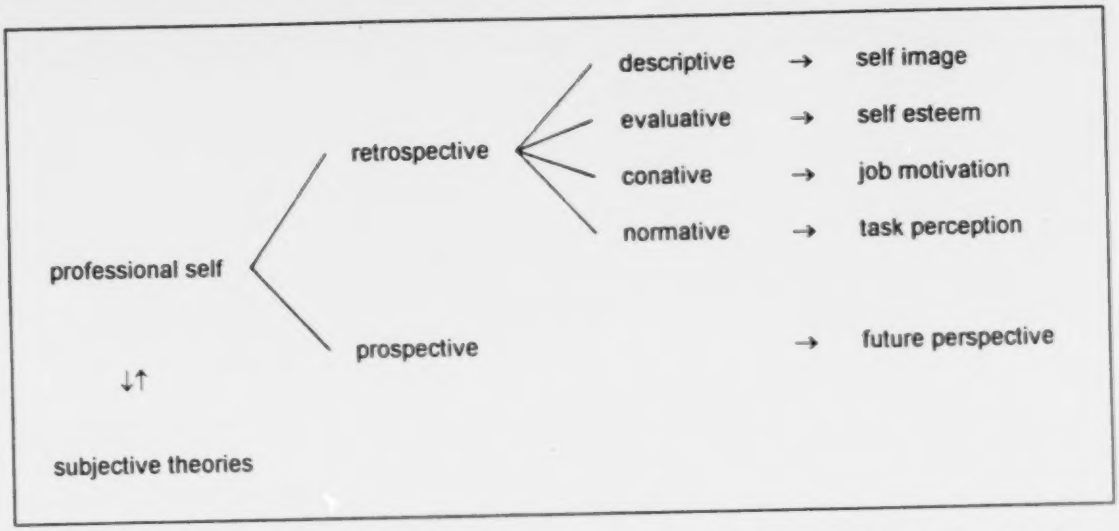

Figure 1. Dimensions and components of the professional self, related to subjective theories about teaching

3. Methods and techniques

In other studies, a variety of techniques has been used to register different aspects of the cognitive functioning of teachers. Examples are

- *the repertory grid technique*. Teachers are asked to sort a number of elements (e.g. handbooks for pupils) in such a way that bipolar dimensions emerge (e.g. traditional - innovative). Then all the participants are asked to evaluate each element on each dimension (e.g. how innovative is handbook A?). The results are represented by multidimensional scaling techniques.
- *the stimulated recall technique*. A lesson is registered on video. Immediately after the teacher reviews his (her) own lesson and tries to experience it again. During this session, he (she) is asked to explicitate the cognitions. The audiotape of the session is used as research data for analysis.
- *the study of 'images' and metaphors* to analyse the conceptions underlying the actual behavior of teachers. The participants are asked to represent their experiences and thoughts in a narrative way. The conceptions underlying their stories are transformed into images and metaphores.
- *the 'policy capturing' technique*. Teachers are confronted with a number of situations (e.g. on video or in a written form) which differ systematically on certain aspects. After they evaluated each situation, regression analysis is used to find out which aspects are the most important to them in designing or planning their lessons.
- *the 'concept mapping' technique*. The teacher is asked to write down all the concepts which he (she) consider to be relevant to a certain topic. Then he (she) has to sort them and to link them with each other using arrows etc. to obtain an adequate representation of how he (she) thinks about that topic. Such representations can be used to analyse the cognitive structure of the teacher related to that topic, to localise the position of certain subconcepts, to establish evolutions over time or to compare (groups of) teachers.

(Verloop, 1995, p. 134-135).

These techniques are primarily designed for the analysis of teachers' cognitions in research settings. Because of their complex and time consuming character, they can hardly be used in support settings. In this study another technique is tried out which is appropriated for support settings as well as for research purposes. Besides it relies more on the reflection of (beginning) teachers on their own cognitive functioning than most of the alternatives mentioned above.

Subjective theories and the professional self of beginning teachers are registered by semi-structured interviews. Questions are asked about four domains which cover the most important parts of teachers' professional task:
(1) teaching methodology,
(2) relations between teachers and pupils,
(3) subject matter, and
(4) relations of teachers with parents, schoolleaders and supervisors.
These domains are chosen based upon an analysis of research literature and validated by preparatory interviews with a number of beginning teachers (others than those who are interviewed in the study itself).

The questions which are asked refer to subjective theories as well as to the different aspects of the professional self (self image, self esteem, job motivation, task perception and future perspective). The main purpose was to elicit from the teachers a reflection on their cognitive functioning as it is underlying their daily practice. The advantage of referring to the four domains, is that a reflection limited to only one particular aspect of the teaching profession is avoided and that a broad specter of relevant cognitions is covered.

4. Data source

Seventy beginning teachers were involved in this study. They came from five different training institutes in a range of 50 km around Leuven and respond to three criteria:
(1) being in the first year of teaching practice,
(2) having at least a half time job,
(3) in an infant school, a primary school or a secondary school.

This sample of beginning teachers is fairly representative for the population of beginning teachers. In any way, the representation of relevant subgroups is sufficiently guaranteed.

5. Results and conclusions

The interviews took place in April 1993. Afterwards, they were verbatim transcribed (protocols) and analyzed in two ways. First, all answers of each teacher separately, across the questions, were restructured to obtain an overall image of his (her) subjective theories and of the different components of his (her) personal self. This is called the 'vertical' analysis.

In fact, this vertical analysis is a interpretative restructuring of the written text of the protocol of each interview. This protocol is divided into a number of fragments. Each fragment refers to a different topic or theme in the answers of the beginning teacher. These themes do not always correspond with the questions which are asked. Answers to different questions sometimes refer to the same theme and sometimes in the answer to only one question different themes can be recognized.

To each fragment, a code is assigned which refers to the content. This code consists of two parts. The first refers to the four domains about which questions are asked in the interview. There are five variants:

TM	teaching methodology,
TPU	relations between teachers and pupils,
SM	subject matter,
TPA	relations between teachers and parents,
TS	relations between teachers and schoolleaders.

The second part of the code indicates whether the fragment refers to a subjective theory or to a component of the professional self, and if so, to which component. There are six possibilities:

ST	subjective theory
SI	self image,
SE	self esteem,

JM job motivation,
TP task perception.
FP future perspective

The two parts of the code together provide a description of the content of each fragment. In fact, the fragments are distinguished into thirty categories, which can be represented as thirty cells of a table (see figure 2).

	ST subjective theory	SI self image	SE self esteem	JM job motivation	TP task perception	FP future perspective
TM teaching methodology						
TPU teacher-pupils relations						
SM subject matter						
TPA teacher-parents relations						
TS teacher-schoolleader relations						

Figure 2: Categories, related to the content of the fragments in the interviews.

This table can be used to make a short description, a profile, of each beginning teacher who is involved in this study. Per teacher, the different fragments from his (her) interview (or at least a summmary of them) are assigned to the related cells. The number of fragments differs from one cell to another and across the teachers. The wide interindividual differences in these themes are one of the most striking results of this study.

These profiles permit to examine the internal coherence and consistency of the answers of each beginning teacher. The results lead to a refinement of the conceptual framework (see 6. Importance of the study): they allow to reflect on the validity of components and relationships which can be recognized in the answers of the teachers. On the other hand, these results provide relevant information to develop individually adapted support programs.

The second analysis was 'horizontal', nl. a systematic comparative analysis of the protocols. This horizontal analysis provides a detailed description of the content of subjective theories and different components of the professional self of beginning teachers. Emphasis is put on commonalities, remarkable differences, recurring patterns, and so on. Because of a shortage of time, this horizontal analysis could only be done for the fragments referring to subjective theories. These fragments are distinguished in categories and subcategories, which can be characterized by a catchword or a short description.

In a first step, the validity of the pre-defined domains is examined and largely confirmed. That's why they are used as a first classification. Within each domain, a classification of the fragments of the interviews is drawed up, based upon an analysis of their content. The categories which are distinguished, are defined a posteriori, according to the collected data. As an example, the categories and subcategories referring to the domain 'teaching methodology' (TM) are displayed in figure 3.

categories	subcategories
content of lessons	mastery by the teacher involvement of the teacher significance curricular regulations
differences between pupils / differentiation	differences between pupils consideration of previously required knowledge
structural design of lessons	
variation / creativity / captivate pupils' attention	importance of captivating pupils' attention variation in content and in teaching methods creativity
consider pupil's interests and ideas	a tool for better understanding and memorizing a tool for higher commitment of pupils a tool for better personal development of pupils a tool for more active participation by pupils more pleasant to pupils pupils feel themselves more at home a tool for enhancement of pupil's concentration a tool for getting hold on the pupils
concretize the content of lessons	better for the cognitive development of pupils more pleasant to pupils beneficial to an optimal course of the lesson(s)
didactical materials	advantages of using didactical materials draw up of materials by the teachers themselves requirements to didactical materials

Figure 3: Categories of subjective theories, related to the domain 'teaching methodology'.

The wide differences between the beginning teachers are already mentioned. However, most of the subcategories distinguished in figure 3, are found with most of the subgroups of the interviewed teachers, but not with equal frequency. Fragments related to the subcategories of 'content of lessons' are especially found with teachers in primary and secondary schools. On the other hand, the theme 'creativity' is found mostly with preschool teachers. Most of the teachers have subjective theories about 'variation / creativity / fascinating pupils' and about 'consideration of pupils' interests and ideas'. Generally, there are more fragments belonging to the domains 'teaching methodology' (TM) and 'teacher-pupils relations' (TPU) than to the three others, indicating that these two topics are very important in the cognitive functioning of teachers.

More details about these categories and subcategories, and about those which are related to the domain 'teacher-pupil relations' (TPU) can be found in the final report on this study (Janssens, Kelchtermans, a.o., 1995, p. 56 - 72).

6. Importance of the study

The importance of the study can be illustrated, referring to the four objectives.

1. As for the conceptual framework, the vertical analysis of the answers of each teacher separately, across the questions, permitted to validate and clarify the relationship between subjective theories and the different components of the professional self (self image, self image, job motivation, task perception and future perspective). The concept of subjective theory itself has been refined by distinguishing two components: knowledge and beliefs.

2. Semi-structured interviews are tried out as a technique to gather information about subjective theories and the different components of the professional self of (beginning) teachers. In general, this technique is found to be suited for research purposes. The main advantage is the fact that it can be used for support settings. A semi-structured interview is found to be an effective tool to elicit reflection by beginning teachers on their professional practice and on subjective theories and th different components of their professional self underlying this practice.

3. A description is made of the content of subjective theories and different components of the professional self of seventy beginning teachers. Although wide inter-individual differences are found, the validity of five pre-defined domains is largely confirmed. Within each domain, categories and subcategories are distinguished. They are found with most of the subgroups of the interviewed teachers, but not with equal frequency.

4. In line with a cognitive approach of teachers' professional behavior, a twofold support system for beginning teachers has been developed. In fact, the continuation is pursued of a support which had to be started already during the initial training. The core idea is that this support should focus on the cognitive functioning of the beginning teachers involved.

Because of its relevance to the educational policy, this support system is discussed more extensively. It is called twofold because it consists of two kinds of activities. The activities of the first kind focus on the job performance of the beginning teachers. That's why it is called a *working support*. Beginning teachers should be guided by a mentor (an experienced colleague) who helps them in preparing their lessons, collecting materials, drawing up evaluation tests according to the arrangements on the school level, becoming familiar with rules and practices in the school, and so on. Because of the school-proof character of this support, the mentor should be an experienced colleague, who can be contacted by the beginning teacher on a daily base. The main activities of this working support are observations of the job performance of the beginning teacher (e.g. in the classroom) and discussions of this observations and of topics (e.g. experienced problems) which are introduced by the beginning teacher or by the mentor.

The activities of the second kind are the complement of the working support. Elsewhere we called it a *learning support*. Emphasis is put on cognitive processes which are the foundations of teachers' behavior. On a regular basis, for instance at the end of each semester, beginning teachers are requested to make a report. This report doesn't mainly refer to their job performance: that kind of reports would be part of a working support. Here, the report should focus on the beginning teachers' cognitions, particularly on their subjective theories and on different aspects of their professional self (self image, self esteem, job motivation, task perception and future perspective).

There are two prerequisites: beginning teachers should be familiar with key concepts about cognitive functioning (e.g. subjective theory, self image, and so on) and they should be able to reflect on their own cognitive functioning. This implies that these concepts as well as the metacognitive skills underlying this reflection should be mastered during the initial training. Moreover, the working support itself should not begin when the new teacher enters the school where he (she) is going to do his (her) job. It should be the continuation of a support which starts when a student teacher is confronted for the first time with teaching practice, mostly in the first year of training. Research findings and experiences in the support of teachers indicate that changing subjective theories, self image, self esteem job motivation, task perception and future perspective requires a long term process.

For all these reasons, the same person should take care of the learning support of a new teacher, from the first year of his (her) initial training until the end of the induction phase. To guarantee the run over of the learning support from the initial training to the beginning professional practice, this supporter should be a staff member of the training institute. He (or she) should dispose of a special capability to elicit reflection by students and beginning teachers, not only on their teaching practice, but also on the cognitive functioning underlying this practice. It is not evident that teacher trainers dispose of this capability: most of them need additional training to acquire it.

After one or two years, the working support as well as the learning support can be taken over by the persons or services who are charged with the 'normal' support of every teacher. But then care should be taken also of a learning support as well as of a working support. In most cases this requires an improvement of the existing support system. Probably working support is overemphasized at the cost of learning support and supporters do not dispose of the already mentioned special capability to elicit

reflection by teachers. In other words, initial training, specific support of beginning teachers and normal support of all teachers during their whole professional career should be linked to each other.

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